

Uwall™ SYSTEM NOTES:

A. GENERAL:

- a. The owner or owner's representative is responsible for reviewing and verifying that the actual site conditions are as described prior to and during construction.
- b. All plan dimensions must be verified by the contractor. The project engineer must be notified of any discrepancies before the contractor begins with work.
- c. Structures such as building footings, swimming pools, retaining walls, storage or solid panel fencing must be kept clear such that the load is not placed between a line projected behind the wall from the founding level at 1V: 1H and the wall.
- d. Precautions must be taken where other building work, service trenches, garden beds, etc. may be excavating in front of the wall.
- e. If the top of the reinforced fills is to be planted, plants with root systems that may adversely affect the facing units shall not be used.

B. REINFORCED FILL:

- a. Fill material in the reinforced soil structure shall be granular and non-expansive and comply with the design parameters Specified on the contract drawings and or Specifications. The material shall be capable of being compacted in accordance with the

Specified requirements to form a stable mass of fill.

- b. Fill material in the facing blocks and in the reinforced soil structure shall be free from organic matter, plastic, metal, rubber or other synthetic material inorganic contaminants, dangerous or toxic materials, or material susceptible to combustion. The pH value of the fill shall be between 5 and 10.
- c. Fill material shall be placed in layers that are no more than one foot, and each layer shall be thoroughly compacted to at least 95% of the maximum dry density for standard compaction in accordance with ASTM D1557. The fill moisture content shall be within +/- 2% of the optimum moisture content for compaction.
- d. The placement and compaction of fill material shall be carried out in a direction parallel to the face of the wall, and shall be completed in stages to follow closely the erection of the Uwall™ units and placement of geogrid reinforcing elements.
- e. Construction vehicles and equipment weighing more than 1,100 lbs. shall be kept more than five feet away from the facing Uwall™. Fill material closer than five feet behind the facing wall may be compacted using hand operated mechanical equipment, such as a vibrating plate, trench compactor or similar.

C. REINFORCING ELEMENTS (WHEN REQUIRED):

- a. Geogrid reinforcing elements to be stored, transported, handled and placed to the manufacturers Specification. They shall not be damaged or displaced during placement and compaction of the fill. Vehicles shall not be operated directly above reinforcing elements that are not covered by at least 4" of fill.
- b. The geogrid soil reinforcement shall be laid behind the Uwall™ units and horizontally on compacted fill. The strong axis of the grid shall be laid perpendicular to the wall face. The next course of units shall be placed. Pull geogrid taut, and anchor geogrid to compacted backfill prior to placing backfill. Slack in the geogrid shall be removed.
- c. Do not allow fresh concrete, cement powder or lime to come into contact with the reinforcing elements.

D. DRAINAGE:

- a. All subsurface drains to have outlets at low point and a positive drainage path. Provide subsoil drainage pipes with flushing points at high points and intermediate points.

E. DESIGN ASSUMPTIONS:

- a. CSI Group and Uwall™ assume no liability for interpretation of subsurface conditions or subsurface groundwater conditions.

DESIGN ASSUMPTIONS:

- a. Should actual conditions vary from those assumed the project engineer should be notified prior to construction to determine if redesign of the proposed structure is required.
- b. Uwall™ engineering is responsible for overturning, sliding, applied bearing pressure, geogrid strength and pullout. Slip circle/global stability, bearing capacity, settlement, scour, temporary cut slope stability and site drainage are the responsibility of others.
- c. Design in accordance with AASHTO LRFD methodology.
- d. Geogrid reduction factors:
 - d.a. Creep = 1.42
 - d.b. Installation damage = 1.03
 - d.c. Durability = 1.15

FOUNDATIONS:

- a. The external wall stability, bearing capacity wall base shear is controlled by maximum permissible eccentricity ratio (soil), $e/L = 0.25$.
- b. Remove all topsoil/subsoil/forest mat from below leveling pad and roadway. Prior to placing fill or leveling course, proof-compact the subgrade with at least 8 passes of a walk behind vibratory roller or 4 passes of a 10,000 pound (static weight) vibratory roller.
- c. The foundation soil shall be proof-rolled prior to placement of fill and geosynthetic reinforcement.
- d. The foundation soil shall be examined by the engineer to ensure that the actual foundation soil strength meets or exceeds the assumed design strength. Soil not meeting the required

strength shall be excavated and replaced with approved material.

- e. Wall embedment at toe of wall = 4' minimum.

DESIGN PARAMETERS:

1. ALL SOIL DESIGN PARAMETERS AS SHOWN ON THESE PLANS MUST BE VERIFIED BY THE OWNER'S ENGINEER. Design of the reinforced soil structure is based upon the following parameters.

a.a. Reinforced fill:

Have the backfill conform to all the following additional requirements

Reinforced fill

Effective internal friction angle = 34 deg

Effective Cohesion = N/A

Moist unit weight = 125 pcf

Retained fill

Effective internal friction angle = 32 deg

Effective Cohesion = N/A

Moist unit weight = 125 pcf

Foundation material

Effective internal friction angle = 30 deg

Effective Cohesion = N/A

Moist unit weight = 125 pcf

2. Surcharge loads applied to structure:
 1. Live Load surcharge: 250 psf.
3. The design assumes no water pressure acts on the wall.

GENERAL U-WALL NOTES:

1. Concrete Strength $f'c = 4000$ psi.
2. Reinforcing Steel:

ASTM A615 (rebar) grade 60
ASTM A1064 (WWF) $f_y = 60$ ksi
3. Uwall™ units to have rectangular cut stone form liner finish (Custom Rock Pattern No. 1102-R2).
4. Anti-graffiti coating to be supplied and applied by CSI.
5. Leveling pad can be either cast-in-place 2,500 psi non-reinforced concrete or dense graded crushed stone per MassDOT M2.01.07.
6. All references to filter fabric on these drawings will be Propex 4530.